2006
Wildlife Diversity Report

Flying Squirrel

Dear Friends:

Indiana's wildlife heritage is wonderfully varied and diverse. Home to more than 800 species of mammals, birds, reptiles, amphibians, fish and mussels, Indiana's wildlife resources once nourished and provided for the physical needs of our pioneers as they settled and developed this great state. Today our citizens continue to cherish this living link with our past, readily accepting the challenge of preserving our wildlife heritage for future generations.

The multifaceted task of conserving the diversity of Indiana's native wildlife can be accomplished only by a partnership between the DNR and Indiana's citizens. Within the DNR, the Wildlife Diversity Section of the Division of Fish and Wildlife provides important structure to the state's conservation efforts for non-game (over 750 species of wildlife that are not pursued by hunters or anglers) and endangered species. Supported by the voluntary contributions of Indiana citizens to the Nongame Fund, this small, dedicated team of scientists carries out survey and monitoring efforts, research projects, critical habitat acquisitions and habitat management efforts. This team also completes species restorations, develops conservation plans, and provides technical assistance to resource management colleagues and the public. I am proud to share with you, our partners, this annual report and to provide an accounting of the work supported by the Nongame Fund. I am confident that you will find this report indicative of a modern, efficient, well-rounded resource program worthy of your continued support.

Please also note the additional opportunities on the horizon for all Hoosiers interested in wildlife conservation to communicate and collaborate through the Indiana Conservation Action Plan. The diversity of wildlife in Indiana refreshes our lives. Together we can provide for the conservation of all species for ourselves and future generations.

Sincerely,

Glen Salmon

Introduction

Who supports nongame and endangered species conservation in Indiana?

a. State Tax Dollars (all citizens)
b. License funds (hunters and anglers)
c. Specialty plates (those who purchase specialty license plates)
d. Volunteer Donors

The correct answer is d. Volunteer Donors. That's right, Indiana's endangered species and most other wildlife (more than 750 species), except for game species (e.g., deer, waterfowl, and turkey) and sport fish species (e.g., bass, bluegill, walleye), depend upon volunteer donations to the Nongame Fund. Most of the donations come through the Income Tax Checkoff, whereby citizens can donate all or part of their state income tax return. With an average donation of less than $15, this is a grassroots program. Additional contributions come from direct donations mailed to the Nongame Fund.

This document reports on the activities carried out by the Wildlife Diversity Section (WDS), which is totally supported by the Nongame Fund. WDS receives neither state tax dollars, license funds, nor funds from the sale of specialty plates. For the last six years, additional federal funds (via the State Wildlife Grants program) have been available to WDS for the care and management of species most in need of conservation. Such federal funds, however require a non-federal match. Without adequate donations to the Nongame Fund, we would not be able to capture these federal funds and bring them to Indiana to extend our ability to protect, manage and secure Indiana's wildlife populations. The federal funds must be approved every year; nothing guarantees that these funds will be available in the future.

For the last 24 years the citizens of Indiana have graciously and consistently supported endangered species conservation at around $400,000 to $450,000 per year. The first major decline came last year, with $300,000. We may never know the factors responsible for the decline, because most donations come through the income tax checkoff, money donated anonymously. Only recently has the Indiana Department of Revenue begun mailing donors receipts for these tax-deductible contributions. These receipts give us a way to send donors additional information about the program. Although we are building our capacity to communicate with Nongame Fund donors, we have not been able to ask our supporters about their concerns, preferences or donation patterns. We plan to start surveying known donors this year (see page 14).

What we can tell you is that Indiana's wildlife needs your support. Please review the pages of this report, which show how your donations contribute to an efficient, cost-effective and successful conservation effort. We greatly appreciate any contribution, large or small. Please help us help wildlife by giving to the Nongame Fund.

How to Donate

The Indiana Wildlife Diversity Section invites you to play an active role in conserving Indiana's nongame and endangered wildlife. This program is funded through public donations to Indiana's Nongame Fund. The money you donate goes directly to the protection and management of more than 750 wildlife species in Indiana —from songbirds and river otters to state-endangered barn owls and spotted turtles. You can help Indiana's wildlife by looking for the eagle logo and the line provided on your Indiana state tax form to donate all or part of your refund. To donate directly, please write to:

Nongame Fund
402 W. Washington St. Rm. W273
Indianapolis, IN 46204

Boardwalk at Pisgah Marsh Wildlife Diversity Area.

Least tern nesting island at Cane Ridge.

Land Acquisition and Habitat Management

Focus on Habitat

All wildlife depends upon appropriate, adequate habitat. As habitats decline in quality and quantity, wildlife most closely tied to those habitats also starts to vanish. As a result, these species are listed as being most in need of conservation. The focus of the Wildlife Diversity Section and the State Wildlife Grants is to provide for the needs of rare and declining species through protection, acquisition and management of habitat.

Additions and Restorations

Some species such as sora and Virginia rails and least bitterns live in wetlands. Ornate box turtles, badgers and bats inhabit uplands. The massasauga rattlesnake, Blanding's turtle and spotted turtle use both habitat types. Our Pisgah Marsh Wildlife Diversity Area has something for everyone, including a quarter-mile ADA accessible boardwalk for wildlife viewing. This year we added 185 acres of mostly uplands to the original 446-acre complex in Kosciusko County. We encourage you to visit the boardwalk to experience the marsh and the uplands (glacial esker) from a beautiful and serene vantage point. For a property map visit: www.in.gov/dnr/fishwild/publications/pisgah.htm

This year also marks the start of restoration activities at Tern Bar Slough Wildlife Diversity Area. This 840-acre Gibson County parcel will contain nesting islands for the federally endangered least tern as well as shallow wetlands. The wetlands are designed for easy maintenance and to mimic the original bottom-land hardwood forest conditions. Trees will be planted in spring 2008. Warm-season grasses will be planted adjacent to the tern nesting islands to discourage avian predator perches in close proximity to the nesting terns. The property is closed to public access until January 2010 to prevent disruption of the restoration activities and to allow the plantings to become established.

If its neighbor is any indication, Tern Bar Slough is destined to become a wildlife haven—the Cane Ridge Unit of the Patoka National Wildlife Refuge sits next door. Collectively, these restorations provide needed wetland habitat associated with the Wabash River and the Mississippi Flyway to help support migratory bird populations. Although it is less than six years old, Cane Ridge is already drawing a wide variety of shorebirds and waterfowl. For a preview of things to come at Tern Bar, please visit Cane Ridge, where roadside wildlife viewing is available.

Other properties provided by State Wildlife Grants include Goose Pond in Greene County and Bob Kern Nature Preserve on Lake Manitou in Fulton County. Wildlife viewing and other outdoor recreation opportunities are available at these sites. Please visit.

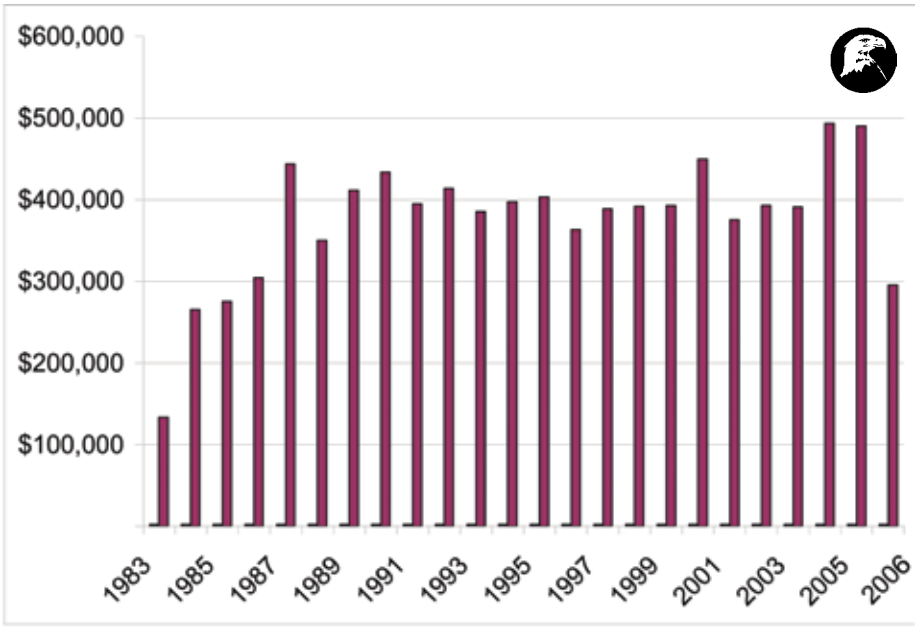
Counting Critters

WDS biologists determine present distribution and abundance of Indiana's nongame species with emphasis on species most in need of conservation. Often our survey efforts are akin to trying to find and count both the needles (species) and the haystacks (habitat).

Survey and Management of Interior Least Terns

With a wingspan of just 20 inches, the federally endangered interior least tern is the smallest member of the tern family, a group of seabirds resembling the more heavy-bodied gulls. Least terns nest in loose colonies on coastal and inland beaches, islands, or river sandbars free of vegetation. Suitable nesting areas have been destroyed because dams and channelization

Nongame Fund Donation History



Caspian tern chicks on a nest in Lake County.

Black-crowned Night Heron on a nest in Lake County.

Adult Banded Pygmy Sunfish grow to be just two inches.

Jamie Faller holds a snapping turtle.

projects have permanently flooded such terrain. Least terns arrive in Indiana to nest around Mother's Day. In the past these birds would have laid their camouflaged eggs on sandbars along the Wabash and Ohio rivers, feeding their young small fish and other aquatic animals. Although least terns still use sites along these rivers, others successfully nest on dikes, ash disposal sites, and islands designed specifically for them.

Since 1986, least terns have nested at Gibson Lake, a 3,000-acre cooling reservoir owned and operated by the Duke Power (formerly Cinergy) Gibson Generating Station near Princeton. A gravel-covered dike at the lake imitates natural habitat. At least 25 pairs of the birds have been noted each year since 1996, but in recent years, high predation on eggs and chicks, primarily by ring-billed gulls, has resulted in dismal production. In 2005, this outlook improved dramatically when terns began using a nesting island constructed at the nearby U.S. Fish and Wildlife Service's Cane Ridge Management Area. A second island was completed for the 2006 nesting season. Twenty-six nests were estimated to be on the Cane Ridge islands. An additional 19 nests were discovered on dikes and ash-disposal areas at three Gibson Lake locations. A maximum of 95 adult least terns were noted in the area and 52 chicks (42 at Cane Ridge) were estimated to have fledged. Great horned owls likely took a few chicks at Cane Ridge. Storms caused the abandonment or destruction of others at Gibson Lake. Black-necked stilts, rare breeders in Indiana, also found Cane Ridge attractive. Nine nests were discovered on one of the islands. Sixteen adult least terns, 13 nests and an estimated 10 fledglings were noted at a power plant near the Ohio River in Spencer County, where terns nested in 2003. A survey of the Wabash River in Gibson County detected 12 adult terns, four fledglings, and one nest on an Illinois island near Grayville.

WDS participates in the efforts to monitor nests of least terns and work with power companies to ensure that activities don't disrupt successful nesting. We are also building nesting islands for least terns at nearby Tern Bar Slough and Goose Pond in Greene County. (See page 3 photo for example.)

Colonial Waterbirds

Several species of large waterbirds nest in groups or colonies on the ground or in shrubs or trees as a means of better protecting their eggs and chicks from predators and aiding in finding distant foods. In Indiana, the great blue heron is the most frequently encountered of this type of bird, often seen singly as it stalks fish and frogs in marshes or along shorelines of rivers, lakes, and ponds. A number of other species are less common in the state and receive more detailed attention. Annual monitoring continued at a colonial waterbird nesting site at Inland (aka Mittal-East) Steel along Lake Michigan in Lake County. This is both the only known site for nesting black-crowned night-herons in Indiana and a recent nesting area for double-crested cormorants. The latter species feeds on fish and is sometimes considered a threat to game fish populations and to other waterbirds due to its habit of taking over nests from other birds and causing the death of trees and shrubs from its concentrated droppings. Double-crested cormorants at Mittal Steel increased from approximately 70 nests

in its initial breeding season in 2004 to 226 nests in 2005, and 696 nests in 2006. Although cormorants are encroaching on trees used by night-herons, numbers of heron nests have shown a more moderate increase from 125 in 2004, to 145 in 2005, to 160 in 2006. Great egrets, large white relatives of the great blue heron, were first discovered nesting at this site in 2005 (five nests). In 2006, 31 nests were present. All three of these waterbirds nest in a small area with over 10,000 pairs of ground-nesting ring-billed gulls and a few of the larger herring gulls. Potential predators, including humans, do not escape the attention of these birds who quickly and noisily respond to any intrusion.

Rare Fish Find

A fish species never previously recorded in Indiana was discovered in October 2006. The story of this exciting discovery starts with a search for a completely different species. Biologists from Illinois are evaluating the possible augmentation of some redspotted sunfish populations in their state. As part of that process, they are conducting a genetics study of other populations to determine the feasibility of using them as source populations. The Illinois biologists were taken to Knox County in southwest Indiana to collect some redspots for this purpose. Most Hoosiers are probably not that familiar with redspotted sunfish, as one has never been turned in for a state record, and most probably have never seen one, let alone caught one. They are a smaller sunfish, normally not exceeding 6 inches in length and are most commonly found in the sloughs, oxbows and other similar habitats in extreme southwestern Indiana. In Indiana, although not common, they can be found with relative ease in their desired habitat.

While our search for the redspots was just beginning, an unexpected, but readily welcomed species was soon discovered. The diminutive banded pygmy sunfish was netted shortly after collecting our first redspotted sunfish. This species was always assumed to be an historical inhabitant of Indiana, although there are no actual records of the species from Indiana waters. There are very old records from the Illinois side of the lower Wabash, where it was once found in weedy sloughs, oxbows and ditches. This fish's current status in this area of Illinois is unknown, but the species is thought to be extirpated. In Knox County, the sunfish was collected from an organic muck-bottomed ditch, choked with aquatic vegetation.

If you are thinking that you might like to go fishing for this newly discovered species, you will have to use a very, very small hook. A large, mature, adult banded pygmy sunfish grows to 2 inches in length. Now that it has been discovered, additional survey efforts in 2007 will attempt to further define its current distribution in our state.

Snapping Turtle

The eastern snapping turtle is the second largest turtle species native to Indiana. Snapping turtles are known for their large size and ill temper. They are considered a game species in Indiana, but management of amphibians and reptiles is not eligible for federal funding for game species. With the proper license, anyone is allowed a bag limit of 25 per day with a maximum possession limit of 50. Snapping turtles may be taken at any time of the year. However, there is currently no information collected within the state on how these regulations are effecting the population. Because of this, research is being done in Monroe County to determine the status (stable, growing, declining) of local snapping turtle populations.

During 2006, WDS biologists trapped turtles at six locations in the North Fork section of Lake Monroe. Turtle traps were baited with cat food, sardines, carp, and other native fish. Data collected for each turtle included: species, size (carapace length, and carapace width), weight, sex, age, time and location. All turtles captured as part of this study were shell notched to provide a unique ID for each individual.

From April through September, 42 snapping turtles were captured, with six recaptures. Five of the recaptured turtles were from earlier in 2006. One was from 2004. Of the 42 caught, 32 were male and 10 were female. The average weight of these turtles was 17 pounds, while the average shell size was 10 inches wide by 12 inches long. The heaviest snapping turtle captured in 2006 weighed 37 pounds. The largest snapper shell size was 13 inches wide by 15 inches long. However, these maximum weight and size measurements came from different turtles.

Along with eastern snapping turtles, five other species of turtles were caught as part of this study. These were stinkpot, eastern spiny softshell, red-eared slider, midland painted turtle and common map turtle. WDS plans to continue collecting data for at least two more years. This should help us gauge how local populations are doing, and determine if any changes are needed for future turtle management.

Frogs and Toads

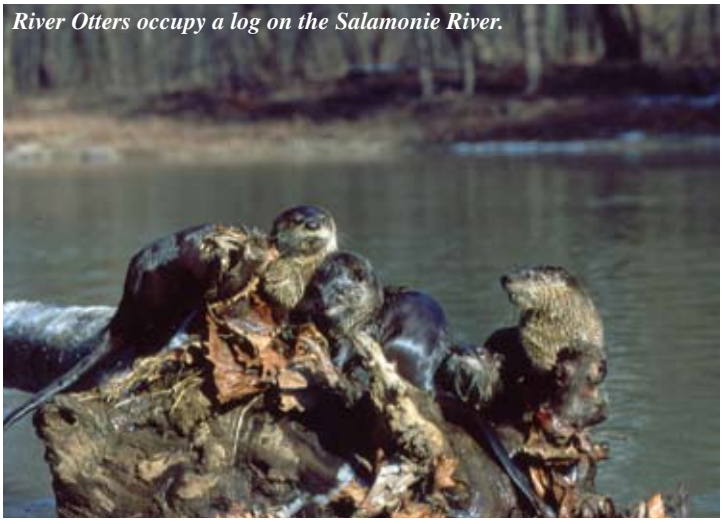
The frogs were in full chorus this year as biologists continued their annual surveys for the state-endangered crawfish frog and the ever-expanding population of green treefrogs.

Crawfish frogs have been a focus of concern in Indiana due to their limited range and drastic population declines. Because of these concerns, Wildlife Diversity biologists have been surveying for this species since 2004. Surveys are conducted in counties where appropriate habitat and/or historic records exist, including Daviess, Greene, Knox, Morgan, Monroe, Pike, and Sullivan Counties. Crawfish frogs sing for only a short amount of time, therefore surveys often need to be completed within 10 days from

Green Treefrog in Posey County at Hovey Lake FWA.

Green Salamander in Crawford County.

Franklin's Ground Squirrel captured in Bention County.



River Otters occupy a log on the Salamonie River.

the beginning of the calling period. In 2006, surveyors heard crawfish frogs in Daviess, Greene, and Sullivan Counties. Within these areas 19 separate choruses were documented, but it is still too early to determine how the crawfish frog is doing within the state. Continued monitoring is necessary to see any trends in this species' population.

On the opposite end of the spectrum, the green treefrog seems to be expanding its range throughout Indiana's southwestern counties. This small green frog can be distinguished easily by its unique "Quank" call. Many people say this call reminds them of a cowbell. This species was first discovered in Indiana in 2003. In 2005, the green treefrog was again the focus of attention as their range expanded over the SW corner of the state. Because of this, WDS biologists began road-cruising surveys to determine just how far this species had spread. Much to our surprise, the 2006 surveys documented a threefold increase in confirmed sites reaching 22 calling localities, an increase from 7 in 2005. The species has now been documented in Posey, Vanderburgh and Warrick counties at varying chorus levels (i.e., some areas are more densely populated than others). These frogs prefer open cypress swamps with buttonbush and other standing vegetation.

Salamanders

Red and green are the colors of the year when searching for rare and endangered salamanders. WDS herpetologists resumed their efforts to locate and study the green and northern red salamanders.

In 1993, the green salamander was first discovered in Indiana. As one of the rarest herpetofaunal species in Indiana, the green salamander is restricted to only a few known sites in Crawford County. Known habitat for this species consists of forested bluffs with abundant moist sandstone and limestone outcroppings. The green salamander uses deep crevices in these outcrops and the bark of surrounding trees for cover and foraging sites. In 2004, WDS began conducting surveys for the green salamander to locate new populations and monitor existing ones. All surveys have been conducted in Crawford, Harrison and Perry counties. Wildlife Diversity biologists have documented only one population located at the initial 1993 discovery site. Two surveys were conducted at this location in 2006; three green salamanders were found. Three other sites were also surveyed, two in Harrison County and one in Crawford, but no new populations were observed. Surveys will continue and biologists hope that more populations can be located.

The northern red salamander has not been seen in Indiana since the 1970's. The original population was discovered in Floyd County. However, much of the initial discovery site has since been developed into a residential area. Surveys in other nearby areas were conducted in Crawford and Harrison counties. Sites selected for red salamander surveys are adjacent to known populations in northern Kentucky. Northern red salamanders inhabit forested springs that hold pooled water throughout the year. Although an abundance of suitable habitat has been found and surveyed, no populations of these salamanders have been located in the state.

North American Amphibian Monitoring

The North American Amphibian Monitoring Program (NAAMP) is administered in cooperation with the United States Geological Survey. This program incorporates public volunteers to collect data on Indiana's 17 frog and toad species. The NAAMP program was initiated because of increasing concerns about global amphibian declines. In Indiana, the crawfish frog is considered a state-endangered species. The northern leopard frog, plains leopard frog, spadefoot toad and northern cricket frog are species of special concern.

Each year, the WDS recruits more than 40 volunteers to recognize the mating calls of Indiana's native amphibians while conducting survey routes throughout the state. Staff specialist Kacie Ehrenberger and herpetologist Zack Walker conducted training sessions to teach new volunteers how to identify frog and toad calls, and gave updates on new survey procedures. Volunteers must follow strict protocols for data collection.

Each driving survey route has a fixed number of stops near suitable amphibian habitat. Observers listen for five minutes

and record what species are present at each stop. Volunteers need to collect data a minimum of three times between February and June each year. In 2006 volunteers submitted data for more than 20 routes statewide. We are grateful to all our dedicated volunteers for their invaluable assistance in monitoring this important group of animals statewide. We could not do it with out them. Data can be accessed at www.pwrc.usgs.gov/naamp.

Congratulations to Brenda Vantlin, the 2006 NAAMP Volunteer of the Year, who was recognized with a pewter frog pin. Brenda brought her grandson Jace to the training in Evansville last fall and has been putting in a lot of work on the Owensville route. She corrected some problems on her route before the season began and ran surveys five times this year, with Jace accompanying her on each survey.

"This has really been an educational experience," Brenda said. "I can now tell people what type of frog they are hearing ... and I'm getting a rep as the "Frog Lady" at work. I guess it could be worse!"

We are recruiting volunteers for 2007. Please e-mail naamp@dnr.in.gov to learn more and find out if a route near you is available.

Surveying for Reptiles and Amphibians at Fish and Wildlife Areas

Biologists continued surveying for populations of reptiles and amphibians at Indiana's State Fish and Wildlife Areas (FWAs). Tri-County and Winamac FWAs were selected to begin long-term sampling in 2004 and 2005, respectively. This year, Hovey Lake FWA was chosen as another herp sampling locality. Coverboards (wood squares that mimic logs and rocks) were placed along sections within good amphibian habitat to provide excellent homes for local salamanders. Biologists then checked under each coverboard and recorded the species found beneath. This study proved especially beneficial in 2006, when biologists found an unknown population of the state-endangered four-toed salamander.

Franklin's Ground Squirrel

Since the mid-1980s, WDS personnel have been conducting periodic surveys for the state-endangered Franklin's ground squirrel. These rare ground dwelling mammals are more common in the Central Plains states northward into southern Canada. Historically, they are limited to prairie habitat in northwestern Indiana. "Franks" are brownish-grey in coloration peppered with black above. They do not have stripes, which distinguishes them from other ground squirrels in Indiana. Also known as the "whistling ground squirrel", their birdlike musical trill is often heard during the early spring breeding season. Currently, populations are found to utilize tall, thick, dense grassy/herbaceous cover remaining along railroad right of ways, and to a lesser extent, isolated nature preserves that provide suitable grassland habitat.

In 2006, only 12 of these squirrels (eight males, four females) were captured at two of the 14 sites surveyed in Lake, Benton and Tippecanoe counties from mid-April to mid-June. Although Franklin's ground squirrels were once found in 16 northwestern counties, most recent surveys have found existing colonies in three counties. Field surveys will continue in 2007 in an attempt to document occurrence at previously occupied sites in Warren, Newton and Vermillion counties, as well as to investigate potential populations throughout the species' historic range.

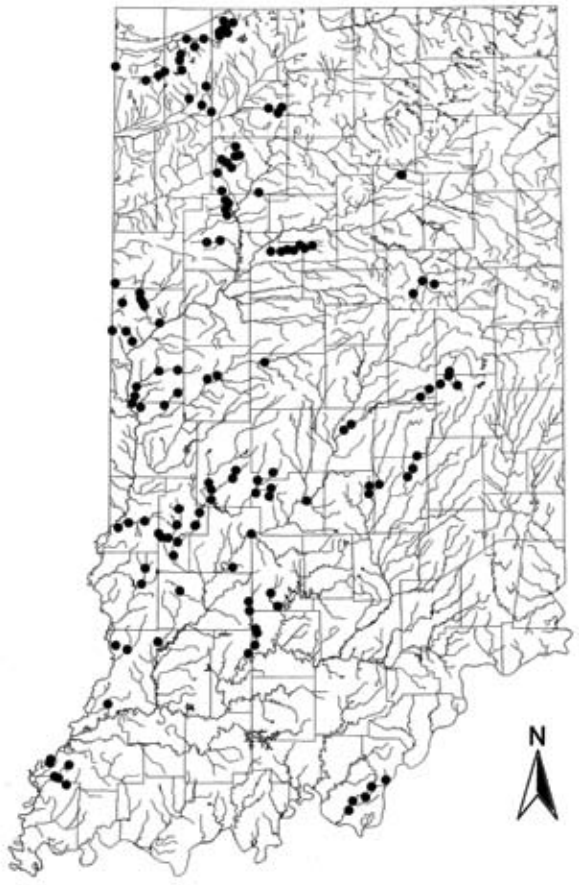
River Otters

North American river otters historically occurred throughout Indiana. With help from Wildlife Diversity personnel, these popular and playful creatures may soon be restored to their historic numbers. Otters have few natural enemies, yet their numbers declined sharply by the early 1900s. Their extirpation from the state by 1942 was due largely to widespread habitat loss and unregulated trapping. The Indiana River Otter Restoration Program (which was funded entirely by donations to the Nongame Fund) was established to restore portions of the otter's native range. To accomplish this goal, 303 otters (184 males, 119 females) collected from Louisiana were released

Kidneyshell mussel.

Rabbitsfoot mussel.

Freshwater Mussel Atlas: 2006 Survey Locations



in Indiana from 1995 through 1999. Otter releases occurred in six watersheds that were chosen because they supported high-quality habitat for otters: Muscatatuck, Patoka, south-central Ohio, St. Joseph, Tippecanoe and Upper Wabash.

Since 1995, WDS biologists have used information from telemetry studies, field surveys, sightings and reported otter mortalities to monitor the distribution of this member of the weasel family. Otters have been found in 66 of 92 counties and 14 of Indiana's 15 watersheds. Although widely distributed in northeast, north-central and southern Indiana, otters remain most abundant around release sites, especially Muscatatuck National Wildlife Refuge, Tippecanoe River State Park and Pigeon River FWA. The number of confirmed reports in Jackson (379), Pulaski (129), Jennings (129) and LaGrange (85) counties supports this assessment.

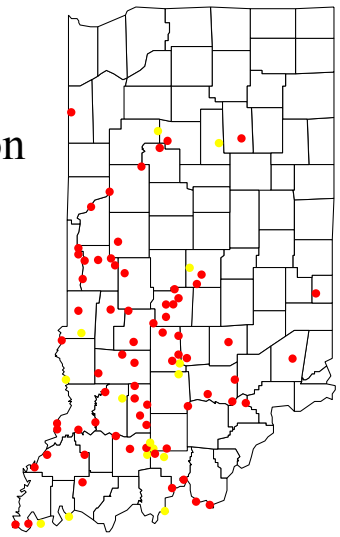
To date, 61 (43 males, 18 females) of the released otters (20 percent) are known to have died, mostly from road-kills and incidental trapping. During the 2005-06 fur harvest season, 37 otters were reported accidentally trapped, compared to 21 the previous season. This 76 percent increase could have resulted from a continued increase in the otter population or the mild winter of 2005-06. An unseasonably mild mid-winter means less ice cover and more open waterways, conditions that often provide trappers with steady opportunities to harvest beaver. From 1994 to 2006, 79 percent of the traps that incidentally caught otters were set for beaver. Nevertheless, trappers continue to be an important asset to Indiana's restoration program. They take steps to minimize the likelihood of accidental otter captures. Additionally, their otter carcasses provide biologists with pertinent information on distribution, age and reproductive success. This information is used to better manage our growing otter population.

In 2005, the successful Indiana River Otter Restoration Program resulted in the removal of river otters from our state-endangered list. River otters are listed as species of special concern and remain protected from intentional trapping in Indiana.

Bald Eagle Nest

Bald Eagle Nest distribution 2006

Red = Active nests
Yellow = Inactive nests



Atlas projects

WDS biologists are working on several "atlas" projects to document where species are found. Much like an atlas of maps, our breeding bird and mussel atlases will help us chart our course of action. The atlases will give us a complete look at the distribution of species in Indiana. In addition, when an atlas is revised, we can compare changes in species distribution and identify any factors threatening species or causing their Indiana populations to change.

Breeding Bird Atlas: 2005-10

WDS biologists and volunteers are again spending their summers "atlasing." This quirky term is now common in our discussions about surveying for Indiana's breeding birds. A breeding bird atlas was completed from 1985 to 1990. In 2006, we completed the second of six field seasons necessary to map the current distribution of breeding birds in 645 standardized blocks in Indiana. Atlas blocks (i.e., survey areas) are predetermined sections of specific maps (USGS 7.5-minute topographic quad) distributed evenly around the state. Each person that is assigned one or more blocks visits the area numerous times to record observations of breeding birds. Data collected is based on behavior—was a bird seen carrying nesting material? Was it courting a female or chasing rival males? Has a male been singing from the same place for more than a week? Such factors are used to determine whether the breeding is confirmed, probable or possible. So far, 158 birds species with breeding evidence have been listed as confirmed (126 species), probable (28), or possible (four) for 355 priority and non-priority blocks. An additional nine species were placed in the "observed" category. To learn more about the project, or if you are an experienced birder who wants to volunteer, please visit: www.pwrc.usgs.gov/bba/.

Freshwater Mussel Atlas

Freshwater mussels are the most endangered group of wildlife in Indiana. Of our 77 species, 15 are state-endangered, 10 of those are federally endangered, and one is a candidate for the federal list.

Surveys for freshwater mussels have been completed for most of Indiana's major drainages, and how we are working on filling information gaps to be sure all species and potential locations have been surveyed. We will then prepare maps for each of Indiana's 77 species of freshwater mussels delineating their current distribution. Often we find only shells of a mussel but these are important indicators of which species once existed there and may still be living in a stream. Our biologists maintain records of live mussels, "fresh dead" and "weathered" shells.

This year we concentrated on sampling in the drainages highlighted in the map on page 7. Weathered shells of several of our endangered and special concern species (clubshell, rabbitsfoot, wavyrayed lampmussel, round hickorynut, kidneyshell, purple lilliput and rayed bean) were found in the lower Big Monon Ditch drainage. Weathered shells of northern riffleshell were located in the upper Eel River in Wabash County. Live kidneyshell were found in Indian Creek in Lawrence County. Live wavyrayed lampmussel, weathered kidneyshell and purple lilliput were discovered in Rock Creek in Carroll County. Weathered shells

Peregrine falcon defending a nest site at BP Amoco in Lake County.

of ellipse were uncovered in the Little Calumet drainage. Attempts will be made to conduct additional intensive sampling for some of our rarer species during the next two field seasons.

New Atlas project

Amphibians and Reptiles: In 2007 we plan to begin working toward the development of a "Herp Atlas." We hope to have a Web site for the public to document sightings of amphibians and reptiles.

Research

WDS biologists work constantly to identify threats to our wildlife and prioritize research that will help us understand these limiting factors and their role in conservation.

Bald Eagle Management

Ever since 73 young bald eagles were transplanted to Indiana in the 1980s, biologist have been discovering more nests each year after finding the first one 1989. Bald eagle nesting populations continued to increase in Indiana during 2006 with 76 known pairs of which 69 pairs were known to lay eggs. This represents an increase from 63 territories and 62 active nests in 2005. Ninety-five young were successfully raised in 51 of those nests. Nest success and productivity was near or above normal compared to recent years (see map on page 8). Overall, we visited 84 nests in 40 counties, where most were found in tall trees along the shorelines of largers lakes and reservoirs. Nine nests were new and five pairs from 2005 did not nest this year. The overall breeding range expanded to the northwest to Newton County. Bald eagles lay 1-3 large white eggs and single eaglets were raised in 16 nests, twins in 26 nests, and triplets in nine nests. Four nests were lost to winds.

On the annual midwinter eagle survey in January 2006, the tally of 211 bald eagles was the second highest count ever, 13 percent above the 2005 count of 187 and 29 percent above the 10-year average. Perched in a helicopter, biologists search for eagles along the shorelines of selected lakes and rivers where eagles are attracted to concentrations of fish and waterfowl, their favored foods. Before the survey, weather conditions were mild and waterways were ice-free. As a result, eagles favored (52 percent of total count) lakes and reservoirs (10-year mean of 29 percent) compared to rivers. Most (59 percent) of the eagles observed were adults sporting white heads and tails, compared with the 10-year mean of 62 percent. Because Illinois does not consistently survey eagles along the Wabash River bordering Indiana, prior counts on Indiana midwinter surveys were retabulated to include all birds observed along the Wabash as part of this nationwide survey effort.

The Nongame Bird Technical Advisory Committee reiterated its intent to propose delisting bald eagles in Indiana if numbers exceed 50 pairs for three consecutive years and federal delisting occurs.

Peregrine Falcon Management

This dramatic bird of prey is oddly at home in human-dominated landscapes in Indiana and the Midwest. Although natural

Marked osprey after release at Minnchaha FWA.

Barn Owl roosting in an Indiana barn.

Cassie Hudson applies ointment to the eyes of a sedated bobcat.

habitats include cliffs, river bluffs, and mountainous regions, this reintroduced predator has adapted to large cities and industrial areas. Feeding on other birds taken on the wing in open areas and nesting on lofty ledges, this once federally endangered species has prospered with restoration and the ban on DDT and related pesticides. With the discovery of two new pairs and inactivity at a previously active site after the death of the resident female, a record 13 active pairs of peregrine falcons were present in Indiana in 2006. Peregrine falcons nested in Indianapolis (two pairs), Fort Wayne, South Bend, and at a power plant in Jasper County. The remaining eight nests occurred at steel mills, power plants, a highway bridge and an oil refinery, all along Lake Michigan. In addition, two pairs nested and an additional pair maintained a territory at bridges along the Ohio River boundary with Kentucky. Two Indiana pairs shifted nest sites, one likely the result of disturbance from a building demolition that may have caused nest failure with subsequent relocation and renesting. Twenty-one of 26 nesting adults were identified from their numbered leg bands. Three were unbanded. The remainder had their origins in Indiana (4), Wisconsin (4), Missouri (2), Illinois (2), Kentucky (1), Michigan (1), Ohio (1), and Iowa (1). One adult had been replaced. Five unhatched eggs were collected, 23 chicks were banded, 12 of 13 nesting attempts were successful, and 30 chicks fledged. Four instances of post-fledging mortality were noted with one injured bird requiring rehabilitation. After release, the bird was retrieved in Ohio, trained by a falconer, and released. Eight other peregrines with Indiana origins were known to be nesting in Wisconsin (2), Illinois (2), Iowa (2) and Ohio (1). New nest boxes were erected at three sites along Lake Michigan.

Osprey Restoration

The osprey is a large fish-eating raptor, common in many coastal areas, but had become rare in the lower Midwest due to the use of DDT and other pesticides that persist in aquatic habitats. Nesting in trees along shorelines, this species favors building its stick nests on man-made structures including buoys, channel markers, duck blinds, and simple nesting platforms placed on top of utility poles. In an effort to bolster nesting populations in the state, Indiana biologists have been reintroducing osprey and erecting nesting platforms. From 2003-06, 96 five-to-eight-week old osprey were obtained from nests in the Chesapeake Bay area of Virginia; 94 were released at four locations in Indiana. Each site received eight birds for three consecutive years from June 10-28 (mean=22 June). Birds were held for 7-38 days (mean=22) and locally obtained fish (primarily gizzard shad, carp, white sucker and yellow perch) were provided at release sites as late as early September. Releases were made from June 22-July 24 (mean=12 July) and 89 percent of released osprey returned to release sites and observed 0-64 (mean=27) days after initial flights. Half of all birds were observed diving for fish; 22 percent were successful in capturing prey. Post-release mortality (predation by great horned owls suspected) was known for three birds, all in 2006, soon after release. Birds were last observed from June 28-September 16 (mean=9 Aug.). During 2006, two birds were equipped with satellite transmitters; these were found dead within days of release. The transmitters were recovered and placed on two additional birds. One transmitter malfunctioned but the remaining satellite provided approximately 10 locations daily. Before dispersal, this bird stayed mostly within a mile of the release site, except for a 24-hour period when the bird ventured 70 miles northwest to the Chicago suburbs before returning. Dispersal began on Aug. 20. This bird remained at Grand Lake in northwestern Ohio from Aug. 21 until Sept. 28, when it migrated to Florida, then Cuba, where its signal was lost after Oct.12 (see map on page 9).

Twelve active nests were found in Indiana during 2006, the same number as in 2005 although nest-building was observed at 5 additional sites this year. Number of nests with eggs included two each at Brookville Reservoir, Potato Creek State Park, Patoka Lake and Pigeon River FWA, and singles at Hovey Lake FWA, Tri-County FWA and the Kankakee River in LaPorte County and St. Joseph County. Eight were successful, three failed and the outcome for the final nest was not determined. At least 16 chicks fledged from the successful nests. Eight nests were constructed on nest platforms, two on utility poles, and one each on a cell tower and in a dead tree. Eighteen nest platforms

were installed and contacts were made to erect additional ones.

Barn Owl Management

The ghostly barn owl nests in the hollows of large tree and feeds on voles and other small mammals at night in nearby pastures, hayfields, and other grassy areas. Once a common inhabitant in Midwestern landscapes dominated by small and diverse family farms, it would frequently nest in wooden barns, silos, corn cribs, and other structures. With agricultural changes resulting in larger farm fields dominated by corn and soybeans, fewer grasslands and old trees, and modern metal buildings, barn owl habitat has become scarce. Since 1983, the WDS has erected more than 200 barn owl nest boxes in 43 counties throughout Indiana. The majority of the boxes are in the southern half of the state in areas with suitable grassland habitat. We maintain a database of these locations. Each year, a number of boxes are examined for use. During 2006, 116 of the 161 boxes remaining were checked. Nineteen boxes showed use by barn owls: single adults (3 sites), adult pairs (2), nests with eggs (3), nests with young (9), and recent deposition of regurgitated pellets (2) consisting of the undigestible hair and bones of a recent meal. All activity occurred in nest boxes except for one pair that used a corn crib. Rock pigeons, European starlings, American kestrels, raccoons and squirrels were also found using the nest boxes. Four new boxes were installed in Owen and Parke counties. Four sites were lost due to barn collapse or demolishment. Of the 45 boxes not checked, most were in northern Indiana. Some were inaccessible because of locked entrances or unsafe conditions.

Bobcat

Bobcats, named for their bobbed tail, are a relatively small feline about twice the size of a house cat. This elusive cat preys on small mammals such as rabbits, squirrels, voles, and mice. Bobcats are widespread in the United States and Mexico and are known to occupy a variety of habitat types from deserts to swamplands. In Indiana, bobcats are often located in second-growth forested habitats with thick undergrowth interspersed among early succession fields, riparian corridors, wetlands, and other undeveloped habitats.

A study of bobcat ecology was initiated in 1998 to determine home range size, spatial relationships, survival and dispersal. The field aspect of this study concluded in April 2006 and data analyses were initiated. Forty-three bobcats (27 males, 16 females) were captured throughout the study. Of those animals, 38 (25 males, 13 females) were fitted with radio collars. More than 15,000 locations will be used to assess bobcat activities in Indiana using the gathered trapping and tracking data.

Travel patterns were observed throughout much of the state, but were concentrated primarily in the southwestern portions; however, we documented movement by young male bobcats into all four surrounding states. Onset, distance and duration varied among individuals. Juvenile bobcat dispersal started anywhere from mid-February to mid-August, with the majority occurring in February and March. The distance traveled by dispersing bobcats varied between 14 and 179 miles, with females moving less than males. Juvenile bobcats tend to exhibit different types of dispersal: straight line, meandering or a combination of both. WDS personnel will continue their analyses to better understand factors that influence the status and distribution of bobcats in Indiana.

The number of reported bobcat sightings, both confirmed and unconfirmed, has increased over the past six years. Since 1970, Wildlife Diversity personnel have documented 127 confirmed reports of bobcats (road kills, accidental captures) from 37 Indiana counties. None of these reports include capture data or sightings obtained during the radiotelemetry study. Ninety-four (74 percent) of the reports have occurred since 2000, including 18 (14 percent) in the past year. The Indiana bobcat population appears to be doing well. In 2005, their legal status was changed from state endangered to species of special concern. They remain protected from trapping, and their prospects for long-term survival in the state is encouraging.

Allegheny woodrat on a rocky cliff.

Allegheny Woodrat

Most people have used the term 'pack rat', but few probably know of its origin. It comes from the Allegheny woodrat's peculiar habit of collecting both food and non-food items into large middens or caches. Items found in woodrat middens in Indiana have included twigs, leaves, bone, seeds, pencils, snail shells, and feces from other animals.

The Allegheny woodrat is about 4-5 times the size of a common house mouse, with the woodrat having a white underside. Despite their name, woodrats are extremely clean, docile, and exhibit none of the unpleasant traits people typically associate with rats. In Indiana, it is believed that woodrats once ranged as far north as Owen County, but today are found only along the cliffs, outcrops, and caves that border the Ohio River in just Harrison and Crawford counties.

The Allegheny woodrat has been listed as state-endangered in Indiana since 1984. Efforts to monitor woodrat populations began in 1991 and still continue today. The number of woodrats trapped in 2006 (88) increased by 73 percent from the previous year. This increase was due, in part, to recolonization of a previously occupied site and to the time of year that trapping was conducted. In 2006, many surveys were taken shortly after peak birthing and pup-rearing periods in March and April. While this increase may seem encouraging, other research shows woodrat numbers to be declining in Indiana and indicates that they

Lake Sturgeon, 2 weeks old.

Box Turtle.

Sarah Bales holds an adult lake sturgeon.

Box Turtle with radio transmitter attached.

may continue to do so. Reasons for their decline most likely include a combination of the following: habitat fragmentation, increased predation, changes in food supplies, reduced genetic diversity, and fatal exposure to the parasitic raccoon roundworm.

In Indiana, woodrats will require considerable help to recover. The DNR is partnering with Purdue University and The Nature Conservancy to improve the future for the Allegheny woodrat. Researchers at Purdue are conducting studies to gain insight on the impact of raccoon roundworm and learn how to improve genetic diversity. Small populations are more likely to suffer from loss of genetic diversity, which makes them more susceptible to losses from other factors. Preliminary tests completed in 2005 revealed that Indiana has three separate subpopulations of woodrats, each of which exhibits low levels of genetic diversity compared to other portions of the species range. The raccoon roundworm is a parasite whose larval stage can infect and kill many host species, including rodents such as woodrats. The woodrat's penchant for collecting feces from other animals in their middens may make them especially vulnerable to raccoon roundworm infection. Although raccoon roundworm has been found in Indiana's woodrats, its impact on the rangewide population remains unclear.

Efforts to address these two concerns are being undertaken. One method is the experimental release of woodrats obtained from non-threatened populations in other portions of the species' geographic range. Half of the release sites will be treated with baits to reduce the presence of raccoon roundworm in resident raccoons. The benefit will be twofold. First, researchers will gain information on the effects of raccoon roundworm on woodrat populations. Second, genetic diversity will improve. Future trapping of woodrats at these sites will provide information on dispersal, survival rates and genetic variability. Historical data can then be compared to future trends. As knowledge is gained, biologists will be more equipped to ensure that the pack rat of Indiana remains here for years to come.

Lake Sturgeon

Lake sturgeon were once a common inhabitant of all of our largest rivers (Ohio, Wabash and White) in Indiana, as well as Lake Michigan. As the result of a variety of factors, including dam construction, water pollution and overharvest, populations have declined across their range. For the entire Ohio River drainage, all that remains is a relatively small population inhabiting the East Fork of the White River in Indiana.

If you have ever seen a lake sturgeon in Indiana, you probably wouldn't quickly forget it. They are an unusual looking fish, with 4 long barbels dangling on the underside of their conical snout, just in front of a large, protractible, vacuum-tube mouth. Rows of boney plates armor their sides and their tail resembles that of a shark. They can reach sizes of over 6 feet in length and 100 pounds in weight.

A smaller, more common species of sturgeon, the shovelnose sturgeon (rarely exceeding 7 pounds) can also be found in Indiana's larger rivers. It can be differentiated from the lake sturgeon by its flatter snout, fringed barbels and

completely armored caudal peduncle (the area just before the tail fin). Lake sturgeon are endangered and if caught should be immediately released.

Indiana's lake sturgeon population inhabiting the East Fork White River in southern Indiana has been studied for more than a decade. Through annual trammel and gill net sampling, nearly 100 individual lake sturgeon have been identified, ranging from 4 to 100 pounds.

Since 2002, transmitters have been placed in different lake sturgeon. These fish have been tracked using radiotelemetry for varying periods of time. These lake sturgeon have shown similar annual movement patterns since the telemetry study started. Most lake sturgeon spend the summer months in a primary, deeper stretch of the river. As water temperatures cool in the fall, the fish tend to disperse throughout the river, eventually selecting a secondary deeper stretch of water in which to spend the winter. Little movement occurs during the coldest winter months. When water temperatures approach 50F, usually around the end of March, the lake sturgeon make an impulsive mass migration upstream. Most reach Williams Dam in Lawrence County, which provides a barrier to further upstream movement. After spending several weeks in the Williams Dam area, the fish slowly redistribute downstream. Most return to their primary summer reach of the river.

In 2005, lake sturgeon spawning (fish congregating to reproduce) was documented in the river for the first time. Several fish were observed spawning along a rocky shoreline just downstream from Williams Dam. Several deposited eggs were collected and taken to Cikana State Fish Hatchery to determine their viability. More than a dozen larval (newly hatched) lake sturgeon were produced from these eggs. Larval lake sturgeon were also collected from the river using larval drift nets set below the spawning area.

A study through Purdue University was completed in 2006 to determine if the genetic structure of the East Fork White River lake sturgeon population is unique. Results showed these fish to be sufficiently different enough from other Great Lake populations to warrant conservation of the population. Any type of augmentation to the East Fork White River population or reintroductions in other parts of the Ohio River drainage should only be attempted using East Fork White River lake sturgeon.

A pilot propagation effort with the East Fork White River lake sturgeon will be attempted in the near future. A couple of male and female lake sturgeon will be collected during their spring spawning run. Milt and eggs will be harvested, mixed and taken to a hatchery to be grown for stocking.

Box Turtles

Box turtles have become a species of national concern over the past few years. Across their range, it appears that box turtles have experienced population declines. Factors such as road mortality, habitat fragmentation, and collection have not improved the outlook for this species. Because of these concerns, Indiana has prohibited the collection of wild box turtles within the state.

The radio waves were busy again this year as biologists continued their second season of radio-tracking eastern box turtles in southern Indiana. Using radio-telemetry methods, Wildlife Diversity biologists collected information on home ranges and movement patterns of this protected nongame species.

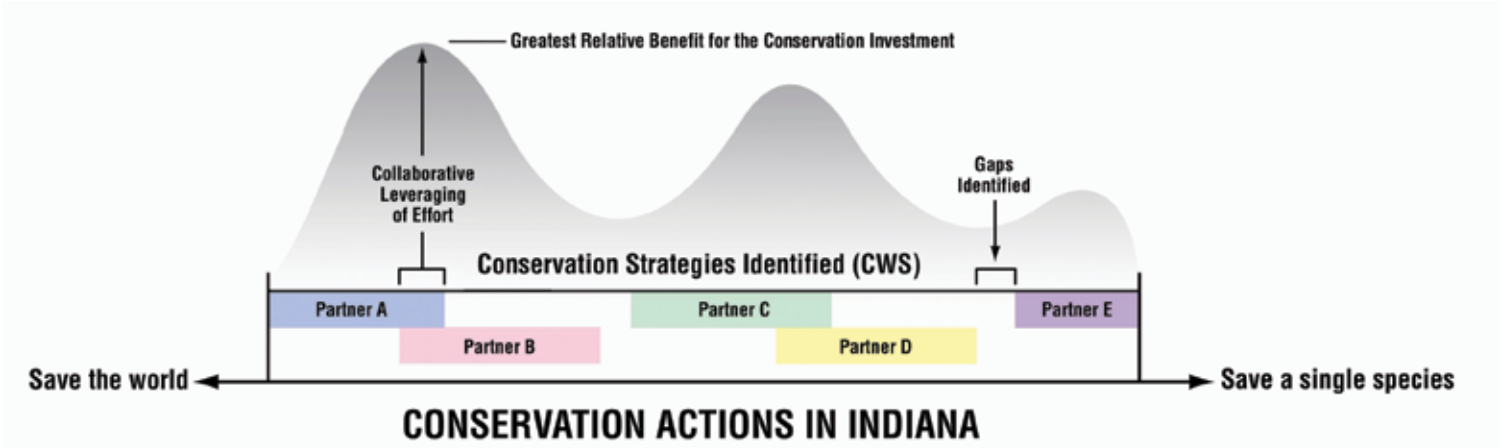
Turtles were located by performing surveys at three different study sites in Martin, Morgan and Brown counties. Biologists will calculate approximate population densities for each study site using the information collected.

Thirty-one turtles were found at the three study sites. This figure included 20 males and 11 females. Eighteen eastern box turtles, including 10 males and 8 females, were fitted with radio transmitters and tracked during the 2006 field season. Turtles were located approximately three times per week during the spring and summer, then roughly one or two times per week in the fall. Transmitters are left on during the winter months, allowing researchers to collect information on the condition of overwintering turtles.

Indiana's Conservation Action Plan

Scientists, bird-watchers, hunters, state biologists, students, environmentalists—just about everyone—agrees that succeeding in wildlife and habitat conservation in Indiana is a bigger job than any one person, organization or government agency can do. So what exactly is this Herculean task?

Simply put, "conservation" means keeping the common species common, securing the perpetuation of rare and endangered species populations, and providing adequate and healthy habitat and natural communities to support self-sustaining wildlife populations. The recently completed and approved Indiana Comprehensive Wildlife Strategy was produced with input from Indiana scientists, DNR personnel and the public. It may be viewed at dnr.IN.gov/fishwild/endangered/. This document identifies the Indiana species most in need of conservation and the actions required to preserve both rare and common species and the habitats upon which they depend. Everyone interested in wildlife conservation can have a role in the ICWS. Whether your passion lies with cavefish



Indiana Conservation Action Plan: Describe state's collective conservation efforts, identify areas of potential collaboration. and identify important conservation gaps.

or crawfish frogs, ducks or deer, clams, cranes or any other species native to Indiana, the strategy identifies needed actions and efforts to help conserve these species and their habitats. This umbrella strategy reflects the connectivity of all wildlife and provides a mechanism for improved conservation efficiency, leveraging initiatives and identifying gaps in conservation efforts.

Because no single entity possesses the necessary strength and resources, all conservation organizations, agencies, and individuals must pull together in a deliberate, focused effort to achieve our collective goals for Indiana's wildlife. To build a strong, effective foundation for our collective conservation efforts, we must set the communication cornerstone. Next spring the IDNR will roll out Indiana's Conservation Action Plan. The ICAP will consist of a Web site supporting a simple, convenient database where all conservation organizations, agencies and individuals, including DNR divisions, can briefly summarize their conservation projects. All types of conservation efforts may be included, such as habitat acquisition, habitat and species management, research, education, and policy development. Each project page will include general information on the project, including but not limited to a goal or purpose statement, partner list, habitat impacted (where appropriate), project cost and barriers to success. For the first time, Indiana will be able to report on the state's collective conservation effort. Organizations will receive credit for the important work they do. Areas of potential collaboration will be identified. Important conservation gaps will be uncovered. Through participation in the ICAP we can all pull together to ensure that wildlife flourishes for our enjoyment and that of future generations.

Coming This Spring To A Computer Near You—The Indiana Conservation Action Plan.

Recent Publications

DeVault, T.L, M.B. Douglas, J.S. Castrale, C.E. Mills, T. Hayes, and O.E. Rhodes, Jr. 2006. Nesting success and status of the least tern breeding colony at Gibson Lake in southwestern Indiana. Proc. Indiana Acad. Sci.115:53-59.

Castrale, J.S. 2006. Indiana winter bird feeder count, 2005-2006. Indiana Audubon Quart. 84:156-163.

Castrale, J.S., A. Holbrook, and K. Teegen. 2006. Indiana Audubon Society Summer Bird Count - 2005. Indiana Audubon Quart. 84:113-129.

DeVault, T.L, M.B. Douglas, J.S. Castrale, C.E. Mills, T. Hayes, and O.E. Rhodes, Jr. 2005. Identification of nest predators at a least tern colony in southwestern Indiana. Waterbirds 28:445-449.

Kennedy, A.J., T.M. Sutton and B.E. Fisher. 2006. Reproductive biology of female shovelnose sturgeon in the upper Wabash River, Indiana. Journal of Applied Ichthyology. 22: 177-182.

Gibson S. E., Z. J. Walker, and B. A. Kingsbury Accepted with Revision. Microhabitat Preferences of the Timber Rattlesnake (*Crotalus horridus*) in the Hardwood Forests of Southern Indiana. In: Biology of the Rattlesnakes, K. R. Beaman, S. P. Bush, M. D. Cardwell, and W. K. Hayes, eds.

Walker Z., N. Engbrecht, and R. Schmitt. 2006. Geographic Distribution: *Hyla cinerea*. SSAR Herp Review 37(1):100

Williams R., B. MacGowan, B. Kingsbury, and Z. Walker. 2006. Salamanders of Indiana. Department of Fors. and Nat. Res. FNR 261. Purdue Extension Publication.

Committees

WDS biologists serve on regional and national committees to represent Indiana's participation in conservation issues. Our service to the conservation community includes:

IDNR, Division of Fish and Wildlife, Fish and Wildlife Management Staff

National Wildlife Diversity Program Managers Working Group

Project Manager- Indiana Comprehensive Wildlife Strategy

Indiana's Endangered Species Coordinator

External Advisory Council for Purdue's Department of Forestry and Natural Resources

Reviewer for peer-reviewed scientific journals including: Illinois Academy of Sciences, Indiana Academy of Science and the American Midland Naturalist.

Great Lakes Lake Sturgeon Committee

Lake Michigan Lake Sturgeon Committee

Graduate student committees at Indiana State University, Purdue University and Taylor University

Migratory Nongame Bird Technical Section Committee of the Mississippi Flyway Council

Science Committee of the Upper Mississippi River and Great Lakes Joint Venture

Biodiversity and Natural Areas Committee of the Indiana Academy of Science

Hoosier Ecosystem Experiment

National Audubon Society's Important Bird Area review committee

Ecology Section Chair for the Indiana Academy of Sciences

Webmaster for the Society of the Study of Amphibians and Reptiles

Indiana Bat Recovery Team

Participated in formal review of Indiana Bat Recovery Plan draft prepared by U.S. Fish & Wildlife Service

Secretary/Treasurer for the Indiana Chapter of The Wildlife Society

Professional Development

WDS biologists also stay active in fish and wildlife issues by participating in training opportunities that further their ability to deal with complex emerging issues in our profession.

Two bird issues that were hot topics in 2006 were avian influenza and wind power. Ornithologist John Castrale attended a workshop on the potential impacts of wind power development on birds and bats. Other staff members attended meetings to discuss surveillance of wild birds for the presence of the highly pathogenic H5N1 virus.

In April 2006 aquatics biologist Brant Fisher visited the Wisconsin River and Wisconsin Dells to gather information on how that state's DNR gathers milt and eggs from lake sturgeon for their propagation program. In their system, lake sturgeon gather below a dam as they move upstream to spawn. As adult lake sturgeon enter the spawning grounds below the dam, they are collected using gill nets and boat electrofishing. Fish are held in large tanks, with flow-through water from the river, then injected with hormones to induce egg deposition. Eggs and milt are collected, mixed and then transferred to a hatchery where they hatch and grow to a desirable length. These fish are then used to augment populations in the river and re-establish populations at further upstream locations. We are considering a similar project in Indiana.

Herpetologist Zack Walker completed Purdue University's Natural Resources Leadership Institute to learn more about conflict resolution regarding natural resources. He has also attended training on how to identify aquatic plant species.

Staff specialist Kacie Ehrenberger is representing Indiana in "Advancing Human Dimensions Expertise Among State and Province Fish and Wildlife Agencies" at Colorado State University. Human dimensions is a social science that studies how people value wildlife, how they want wildlife to be managed and how they affect or are affected by wildlife and wildlife management decisions. As part of this course Ehrenberger will conduct a survey of known donors to the Nongame Fund.

THANKS

Naturalist Aides

We are able to accomplish all that you see in this report only because of a dedicated staff of naturalist aides. Our aides are part-time biologists who have degrees in natural resources and are highly skilled professionals. The following people worked throughout 2006:

Sarah Bales
Nick Burgmeier
Nate Engbrecht
Jamie Faller
Aaron Holbrook
Cassie Hudson
Dustin McBride
Ken Teegan
Heather Walker

We also appreciate the hard work of naturalist aides who spent the summer working on the osprey reintroduction and breeding bird atlas projects:

Adam Grossman
Andrea Bootman
Rebekah Bergens
Brian Bailey
Andy VanLaan
Cheryl Fisher
Brad Jackson

WDS display at Brown County State Park Nature Center

Kacie Ehrenberger worked with naturalists at Brown County State Park to update a nature center display on our program. The new display highlights our work in the Brown County Hills area of the state. Davie Kean did all of the artwork and Jim Eagleman helped with generating ideas and supporting the project.

Osprey Nesting Platforms

To augment our osprey reintroduction, we have been putting up osprey nesting platforms near bodies of water throughout the state. The following list of people and organizations helped find locations for platforms and/or donated materials to the project:

St. Mary's College
Carole Riewe
American Electric Power
Indiana American Water
Dubois County REC
Noble County REMC
Duke Energy
Vectren
Big Blue River Conservancy
Red-tail Conservancy
Camp Lutherhaven
Robert Cooper Audubon Society
Westwood Park
Richmond Power and Light
Earlham College
Sullivan County Parks
Bob and Jonathan Plymire (Eagle Scout Project)
Nisource
IDNR Divisions of State Parks and Reservoirs, Fish and Wildlife, and Forestry
WinEnergy REMC
Sullivan County Parks Department

Dr. Angela Lennox of Avian & Exotic Animal Clinic of Indianapolis voluntarily examined all osprey chicks upon their arrival to Indiana. Her staff members donated their services for all four years of the project. Fish to feed the osprey were provided by fisheries biologists with the Indiana Division of Fish and Wildlife and Ball State University.

Peregrine Patrol

Our downtown peregrine falcon parents, Kinney and Kathy Q, always have a few volunteers intently watching their chicks develop and learn to fly. This year Richard Kinnett, Laura James-Reim, Phyllis Zimmerman and Leanne Fishel kept reports on how the young falcons were doing. James-Reim also maintained a blog so that all falcon lovers could stay tuned in to their progress. Several people watching the blog made donations to the Nongame Fund in honor of the falcons. The blog and a falcon-cam are maintained by Tom Leyden and Matthew Dial of The Indianapolis Star. For more, please visit www.blog.indystar.com/falconblog.

Technical Advisory Committees

WDS works with five Technical Advisory Committees (TAC) to address issues relating to mammals, amphibians and reptiles, birds, fish and freshwater mollusks. TACs have a maximum of nine members and a WDS biologist as an ex-officio member. The members, primarily university professors, are considered experts in their fields of study. TACs generally meet once a year. Members are also referred to as needed for input in nongame and endangered species issues. Their expertise is a valuable asset to our ability to conserve Indiana's wildlife. The following people participated on TACs in 2006:

Fish TAC
Joe Foy
Dr. Thomas E. Lauer
Dr. William D. Pearson
Dr. Thomas P. Simon, chair
Dr. Trent M. Sutton

Amphibian and Reptile TAC
Dr. Robert Brodman
Dr. Spencer Cortwright
Dr. John Iverson
Dr. Daryl R. Karns
Dr. Bruce Kingsbury
Mike Lodato, chair
Dr. Vicky Meretsky
Alan Resetar

Mollusk and Crustacean TAC
Kevin Cummings
Jeff Harmon
Max Henschen, chair
Ronald R. Richards
Dr. G. Thomas Watters

Mammal TAC
Dr. Ralph D. Kirkpatrick
Dr. Dale Sparks
Dr. Robert K. Swihart
Dr. Harmon P. Weeks Jr.
Dr. John O. Whitaker, Jr., chair

Bird TAC
Dr. Ken Brock
Dr. William Buskirk, chair
Dr. Barny Dunning
Dr. Jim Haw
Ed Hopkins
Charles Keller
Dr. Harmon P. Weeks Jr.
Dr. J. Dan Webster
Dr. Donald Whitehead

Editing, Design and Layout of Annual Report

Erin K. Hiatt
Marty Benson

Partners

We work extensively with our partners on conservation projects throughout the state. The following organizations are conducting research in cooperation with our biologists, donated resources toward our work or helped us logistically with accomplishing our goals.

- Purdue University, Department of Forestry and Natural Resources
- Indiana State University, Department of Ecology and Organismal Biology
- Indiana State University, Department of Geography, Geology and Anthropology
- D.J. Case and Associates
- Midwest Biodiversity Institute
- Southern Illinois University, Cooperative Wildlife Research Lab
- Duke Energy
- Natural Resource Conservation Service
- Patoka National Wildlife Refuge
- Crane Naval Surface Warfare Center
- The Nature Conservancy, Indiana Chapter

NONGAME FUND DONORS

We truly appreciate all donations you have made to the Nongame Fund. Every donation makes a difference for Indiana's wildlife.

Wildlife Diversity Section
402 W. Washington St., Room W273
Indianapolis, IN 46204

Who are we?

The Wildlife Diversity Section is part of the Division of Fish and Wildlife in the Department of Natural Resources. Six full-time staff members work in WDS. Each has statewide responsibilities for nongame and endangered species. The Nongame Fund is the funding source for the WDS. Our goal is to:

Provide for viable populations of all animals native to Indiana and strive for population levels that are in balance with public expectations, habitat capacity and legal mandates.

Contact Us

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- **Brant Fisher**, *aquatics biologist*
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- **Zack Walker**, *herpetologist*
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What do we protect?

Nongame refers to any animal species that is not traditionally pursued through hunting and fishing. In Indiana, nongame species comprise more than 90 percent of the state's mammals, birds, fish, mussels, reptiles and amphibians. Many nongame species are common throughout the state. You can see them in a typical outdoor setting, even your own backyard.

Endangered species are any animal species whose prospects for survival or recruitment within the state are in immediate jeopardy. Such animals are in danger of disappearing from the state. The category includes all species classified as endangered by the federal government that occur in Indiana.

Special Concern includes any animal species about which some problems of limited abundance or distribution in Indiana are known or suspected. Such species should be closely monitored.

Species Most in Need of Conservation include all of Indiana's endangered species and species of special concern. For a current list of these species visit:dnr.IN.gov/fishwild/endangered/.